

## Part A.

# Twin Biology and Multiple Pregnancy

**Twin Biology and Multiple Pregnancy** examines the incidence and factors of twinning, embryology of twinning, and multiple pregnancy. The first volume of this three-volume set presents studies from countries throughout the world. Contributors discuss some of the maternal factors that have caused a decrease in both dizygotic (DZ) and monozygotic (MZ) twin births, such as decreased average maternal age, decreased fertility, and reduced parity because of contraception.

**Twin Biology and Multiple Pregnancy** also examines the effects of multiple pregnancy on the mother and her offspring. Mothers who experience multiple pregnancies may be more susceptible to complications such as gynecological diseases, hydramnios, pre-eclamptic toxemia, and a higher mortality rate.

Other topics of interest include the preconceptional prognosis of twin pregnancies, malformations unique to the twinning process, plasma steroids in twin studies, and an analysis of spontaneous abortion using a new half-sib model.

**Twin Biology and Multiple Pregnancy** is of special interest to gynecologists, obstetricians, epidemiologists, and biophysicists.

## CONTENTS OF PART A

The Twinning and Fertility Paradox, **Gordon Allen**

### Incidence and Factors of Twinning

The Probable Explanation for the Falling Twinning Rate in Scotland, **Ian MacGillivray**

Analysis of Twinning Rates in Japan, **Eiji Inouye and Yoko Imaizumi**

The Changing Incidence of Twinning: One Century of Italian Statistics, **Paolo Parisi and Giancarlo Caperna**

Some Observations Concerning the Decline of Dizygotic Twinning Rate in France Between 1901 and 1968, **Denis Hémon, Colette Berger, and Philippe Lazar**

Twinning Rates in Virginia: Secular Trends and the Effects of Maternal Age and Parity, **Michael Mosteller, J. Ives Townsend, Linda A. Corey, and Walter E. Nance**

Errors of Weinberg's Difference Method, **Gordon Allen**  
Parental Age, Sibship's Size, and Sibship's Sex Ratio in Twins: A Progress Report, **L. Gedda, M.T. Lun, R. Carrega, and E. Roselli**

Demography and Genetics of Human Twinning in the Utah Mormon Genealogy, **D. Carmelli, S. Hasstedt, and S. Andersen**

Reproductive and Menstrual Characteristics of Mothers of Multiple Births and Mothers of Singletons Only: A Discriminant Analysis, **Grace Wyshak**

Multiple and Singleton Pregnancy: Differences Between Mothers as Well as Offspring, **G. Corney, D. Seedburgh, B. Thompson, D.M. Campbell, I. MacGillivray, and D. Timlin**

The Age Distribution of Dizygotic Twinning in Humans and Cattle: Etiologic Implications, **Philip R.J. Burch**

### Embryology of Twinning

Malformations Unique to the Twinning Process, **Walter E. Nance**

Lessons From Multiple Pregnancies in Mammals, **Kurt Benirschke**

Cytogenetic and Antigenic Studies in a Pair of Twins: A Normal Boy and a Trisomic 21 Girl With Chimera, **S. Gilgenkrantz, C. Marchal, Ph. Wendremaire, and M. Seger**

On the Timing of Monozygotic Twinning Events, **Charles E. Boklage**

A Study of Mirror Imaging in Twins, **L. Gedda, G. Brenci, A. Franceschetti, C. Talone, and R. Ziparo**

### Multiple Pregnancy

Reproductive Performance in Twin Sisters, **Barbara Thompson, Ben Sauvé, Ian MacGillivray, and Doris Campbell**

Preconceptional Prediction of Twin Pregnancies, **Philippe Lazar, Colette Berger, and Denis Hémon**

Echographic Imagery of Amniotic Membranes in Twin Pregnancies, **R. Bessis and E. Papiernik**

Plasma Steroid Changes in Twin Pregnancies, **R.L. TambyRaja and S.S. Ratnam**

The Analysis of Spontaneous Abortion Using a New Half-Sib Model for Qualitative Traits, **W.L. Golden, R.M. Winter, L. Eaves, K. Berg, and W.E. Nance**

The Outcome of Twin Pregnancies in Aberdeen, **Ian MacGillivray and Doris M. Campbell**

The Northwestern University Multihospital Twin Study: III. Obstetric Characteristics and Outcome, **Gary S. Berger, Louis G. Keith, Robert Ellis, Richard Depp, and Donald M. Keith**

The History of the Florentine Sextuplets: Obstetric and Genetic Considerations, **M.L. Giovannucci-Uzielli, C. Vecchi, G.P. Donzelli, V. Levi D'Ancona, and E. Lapi**

# Intelligence, Personality, and Development

**Intelligence, Personality, and Development** presents data on the genetic aspects of a twin's intelligence, personality, and overall development.

The first section includes a chapter that studies prenatal and maternal factors, such as birthweight, placental weight, head circumference, and presence of anemia during pregnancy, which affect cognitive ability in monozygotic twins.

The second section focuses on the components that can affect the development of a twin's personality. Topics of interest include ego phenomenology, twins reared apart, mortality and psychosis in twins, and common fears and phobias of twins.

The third section examines the influence of genetic factors on the overall development of a twin.

**Intelligence, Personality, and Development** will be of interest to researchers, clinicians, and professionals interested in medical, experimental, and child psychology; psychiatry; public health; and special education.

## CONTENTS OF PART B

The Human Twin, Luigi Gedda

### Intelligence: Twin and Adoption Studies

In Search of the Missing Environmental Variance in Cognitive Ability, S.G. Vandenberg and A.R. Kuse

Generalizability of Heritability Estimates for Intelligence From the Texas Adoption Project, Joseph M. Horn, John C. Loehlin, and Lee Willerman

The Study of Mental Ability Using Twin and Adoption Designs, Thomas J. Bouchard, Jr.

Multivariate Behavioral Genetics and Development: Twin Studies, Robert Plomin and J.C. DeFries

Placentation Effects on Cognitive Resemblance of Adult Monozygotes, Richard J. Rose, I.A. Uchida, and J.C. Christian

Intelligence-Test Results in Opposite-Sex Twins, Siv Fischbein

Development of Piagetian Logicomathematical Concepts and Other Specific Cognitive Abilities, Arleen Garfinkle and Steven G. Vandenberg

Relevance of the Marriages of Twins to the Causal Analysis of Nonrandom Mating, W.E. Nance, L.A. Corey, R.J. Rose, and L.J. Eaves

Sex-Limitation and "Asymmetric" Assortative Mating, L.J. Eaves and A.C. Heath

### Twin Research in Personality

How Stable are Personality Traits?, L.J. Eaves and P.A. Young

Personality Resemblance Among Adolescents and Their Parents in Biologically-Related and Adoptive Families, Sandra Scarr, Patricia L. Webber, Richard A. Weinberg, and Michelle A. Wittig

Blood Groups, Physical Appearance, and Personality Similarity in Adult Dizygotic Twins, Joseph M. Horn, Karen Matthews, and Ray Rosenman

Twin Resemblances in Personality, Frank Barron

Heredity and Personality in Visual Perception, Silvia Borella

Rorschach Test and the Myokinetic Psychodiagnosis of Mira y Lopez in Twins, M. Timsit, C. Bastin, and M. Timsit-Berthier

Ego Phenomenology in the Human Twin, Luigi Gedda and Silvia Borella

Environmental Childhood Similarity and Similarity in Adult Personality and Neurotic Development in Twin Pairs, Sverre Torgersen

A Genetic and Environmental Analysis of Obsessionality in Normal Twins, C.A. Clifford, D.W. Fulker, and R.M. Murray

Twin-Family Studies of Common Fears and Phobias, Richard J. Rose, Judy Z. Miller, Michael F. Pogue-Geile, and Gilbert F. Cardwell

Mortality and Psychosis in Twins, Adrienne M. Reveley, Hugh M.D. Gurling, and Robin M. Murray

MZ Twins Reared Apart: Preliminary Findings of Psychiatric Disturbances and Traits, Elke D. Eckert, Leonard L. Heston, and Thomas J. Bouchard, Jr.

Finnish Twins Reared Apart: Preliminary Characterization of Rearing Environment, Heimo Langinvainio, Markku Koskenvuo, Jaakko Kaprio, Jouko Lonnqvist, and Lauri Tarkkonen

### Twin Research in Developmental Studies and Temperament

Synchronized Developmental Pathways for Infant Twins, Ronald S. Wilson

Heredity-Environment Influences on Growth and Development During Adolescence, Siv Fischbein

The Minnesota Study of Twins Reared Apart: Project Description and Sample Results in the Developmental Domain, Thomas J. Bouchard, Jr., Leonard Heston, Elke Eckert, Margaret Keyes, and Susan Resnick

The Interaction of Family Attitudes and Cognitive Abilities in the La Trobe Twin Study of Behavioural and Biological Development, David A. Hay and Pauline J. O'Brien

The Impact of Twin Research in Developmental Studies on Models of Human Development, Reuven Kohen-Raz

The Social Development of Twins in Longitudinal Perspective: How Stable is Genetic Determination Over Age 2 to 9?, Hugh Lytton and Denise Watts

Genetic Aspects of Temperamental Development: A Follow-Up Study of Twins From Infancy to Six Years of Age, Anne Mari Torgersen

Heredity and Temperament: A Comparison of Twin Data for Self-Report Questionnaires, Parental Ratings, and Objectively Assessed Behavior, Robert Plomin

Assessment of Temperament in Twin Children: A Reconciliation Between Structured and Naturalistic Observations, Adam P. Matheny, Jr.

Twinship as Handicap: Fact or Fiction?, Denise Watts and Hugh Lytton

# Epidemiological and Clinical Studies

The first section of **Epidemiological and Clinical Studies** examines smoking, drinking, and substance exposure in monozygotic (MZ) and dizygotic (DZ) twins. The data in this section help clarify the role that environmental and genetic factors play in the variation of these habits in twins.

The second section studies genetic and environmental factors of coronary heart disease in twins. A report on serum lipid levels in MZ and DZ twins by chorion type is also included.

The third section of **Epidemiological and Clinical Studies** provides new data on the genetics of aging and cancer. Topics of interest include twin studies and chronogenetics, Mormon genealogy, and cancer etiology.

The final section presents anthropological and clinical studies on mutability in twins, the natural history of atomic-bomb-exposed twins, and variations of heritability as a function of parental age.

This book is of interest to epidemiologists, oncologists, pharmacologists, anthropologists, psychologists, and psychiatrists.

## CONTENTS OF PART C

Methodologic Problems in Matched-Pair Studies Using Twins, Zdenek Hrubec

### Epidemiological Studies: Smoking, Drinking and Substance Exposure

Twin Azygotic Test: An Application to Italian Twin Data, L. Gedda, C. Rossi, G. Brenci, and R. Ziparo

Twin Studies: Are Sequential Methods Useful?, -- Jacob E. Bearman

Characteristics of Smoking-Discordant Monozygotic Twins, Gary D. Friedman, Mary-Claire King, Arthur L. Klatsky, Stephen B. Hulley

Structural Analysis of Smoking, Alcohol Use, and Personality Factors in MZ and DZ Twin Pair Relationships, Heimo Langinvainio, Jaakko Kaprio, Markku Koskenvuo, and Lauri Tarkkonen

Cigarette Smoking, Use of Alcohol, and Leisure-Time Physical Activity Among Same-Sexed Adult Male Twins, Jaakko Kaprio, Markku Koskenvuo, and Seppo Sarna

Preliminary Findings From a Twin Study of Alcohol Use, C.A. Clifford, D.W. Fulker, H.M.D. Gurling, and R.M. Murray

Twin Similarity for Usage of Common Drugs, Nancy Pedersen

Twin Studies on Substance Abuse: An Overview, Marc A. Schuckit

Adoption Studies of Alcoholism, Donald W. Goodwin

Investigations Into the Genetics of Alcohol Dependence and Into Its Effects on Brain Function, H.M.D. Gurling, R.M. Murray, and C.A. Clifford

A Twin Study of Psychomotor Performance During Alcohol Intoxication: Early Results, N.G. Martin, J.B. Gibson, J.G. Oakeshott, A.V. Wilks, G.A. Starmer, J. Craig, and J. Perl

Olfactory Sensitivity in Twins, Helen B. Hubert, Richard R. Fabsitz, Kenneth S. Brown, Manning Feinleib

Morphine and Experimental Pain in Identical Twins, Edward H. Liston, John H. Simpson, Lissy F. Jarvik, and Donald Guthrie

### Coronary Heart Disease

Twin Research in Coronary Heart Disease, Kåre Berg

Stress and Coronary Heart Disease, Einar Kringlen

Coronary-Prone Behavior in Adult Same-Sexed Male Twins: An Epidemiological Study, Markku Koskenvuo, Jaakko Kaprio, Heimo Langinvainio, Matti Romo, and Seppo Sarna

The Hamilton Twin Study: Comparison of Serum Lipid Levels in Monozygotic and Dizygotic Twins by Chorion Type, Manning Feinleib, Joe C. Christian, Lillian Ingster-Moore, Robert J. Garrison, W. Carl Breckenridge, and Irene Uchida

Blood Pressure in Norwegian Twins, Arvid Heiberg, Per Magnus, Kåre Berg, and Walter E. Nance

### Chronogenetics, Aging, and Cancer

Twin Studies and Chronogenetics, L. Gedda and G. Brenci

The Age-Dependence of Disorders of Aging: Implications for Studies of Twins, Philip R.J. Burch

A Longevity Study of Twins in the Mormon Genealogy, Dorit Carmelli and Sheree Andersen

Results of the 40-Year, Longitudinal Study of a Series of Twins of Berlin (450 Monozygotic and Dizygotic Twin Pairs), Gerhard Koch

Studies of Cancer Etiology in the Danish Twin Population. I. Breast Cancer, Niels V. Holm

Cancer in Adult Same-Sexed Twins: A Historical Cohort Study, Jaakko Kaprio, Lyly Teppo, Markku Koskenvuo, and Eero Pukkala

### Anthropological and Clinical Studies

The Variations of Heritability as a Function of Parental Age, F.A. Lints and P. Parisi

Genetics of Quantitative Variation of Human Scalp Hair Diameter, A.B. Das-Chaudhuri

Are Distances Between DZ Twins for Polygenes and for Major Genes Correlated?, Elisabeth Defrise-Gussenhoven, Charles Susanne, Yvette Michotte, Joseph Brocteur, and Bernadette Hoste

Studies of Mutability in MZ Twins, L. Gedda, G. Brenci, C. Di Fusco, A. Noto, and E. Roselli

Results of a Monozygotic Cotwin Control Study on a Treatment for Myopia, J. Theodore Schwartz

Basic Survey on Atomic-Bomb-Exposed and Nonexposed Twin Pairs: Pilot Case Study From a Sociohistorical Viewpoint, Shoji Wantanabe, Hiroshi Ueoka, Masaki Munaka, and Naomasa Okamoto

Pilot Case Study on the Natural History of Disease in Atomic-Bomb-Exposed Twins in Hiroshima, Yukio Satow, Hajime Okita, and Naomasa Okamoto

Country \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Address \_\_\_\_\_  
 Name \_\_\_\_\_  
 PLEASE PRINT  
 All orders subject to credit approval \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Card Number \_\_\_\_\_  
 Expiration Date \_\_\_\_\_  
☐ MasterCard ☐ VISA  
 Please charge this order to my \_\_\_\_\_

Return this form with payment or purchase order to:  
 ALAN R. LISS, INC.  
 150 Fifth Avenue  
 New York, NY 10011  
 All prices subject to change without notice.  
 Payment must be in U.S. dollars or at current rate of exchange. For  
 payments not made in U.S. funds and through a U.S. bank, please add a  
 \$6.00 service charge.  
 New York State residents please add appropriate sales tax. Order must  
 be accompanied by payment or institutional purchase order. No postage  
 or handling charged on prepaid orders.  
☐ Please send me \_\_\_\_\_ copies of Twin Research 3, a three-volume  
 set, at \$124.00 U.S. per set.  
☐ Please send me \_\_\_\_\_ copies of Twin Research 3: Part A. Twin  
 Biology and Multiple Pregnancy at \$36.00 U.S. per copy.  
☐ Please send me \_\_\_\_\_ copies of Twin Research 3: Part B.  
 Intelligence, Personality, and Development at \$44.00 U.S. per copy.  
☐ Please send me \_\_\_\_\_ copies of Twin Research 3: Part C.  
 Epidemiological and Clinical Studies at \$44.00 U.S. per copy.

## ORDER FORM

Progress in Clinical and Biological Research, Volumes 69A, 69B, and 69C

Alan R. Liss, Inc., New York

# Twin Research 3

Part A. Twin Biology and Multiple Pregnancy

Part B. Intelligence, Personality, and Development

Part C. Epidemiological and Clinical Studies

Luigi Gedda, Paolo Parisi, and Walter E. Nance, Editors

In June 1980, experts from a broad range of disciplines convened in Jerusalem for the Third International Congress on Twin Studies. Papers from this meeting comprise **Twin Research 3: Parts A, B, and C**.

**Twin Research 3** examines twinning, i.e., its biological and medical implications, as well as the methodology of twin research.

Included are:

- New perspectives in the study of fertility and population trends
- New data on the genetics of intelligence, personality, and development
- New information on the genetics of cardiovascular disease, aging, and cancer
- Evaluation of the problems related to multiple pregnancy
- New data on problems of smoking, drinking, and substance exposure with a genetic and epidemiological perspective

**Twin Research 3: Parts A, B, and C** is of value to researchers and clinicians interested in pediatrics and medical, human, and behavioral genetics.

Progress in Clinical and Biological Research, Volumes 69A, 69B, and 69C

**Twin Research 3 (Three-Volume Set)**

Luigi Gedda, Paolo Parisi, and Walter E. Nance, Editors

Proceedings of the Third International Congress on Twin Studies,  
 Jerusalem, June 16-20, 1980

Three-Volume Set \$124.00

ISBN 0-8451-0069-6

LC 81-12376

Progress in Clinical and Biological Research, Volume 69A

**Twin Research 3: Part A. Twin Biology and Multiple Pregnancy**

ISBN 0-8451-0158-7

LC 81-12376

Publication: September 1981

242 pages, \$36.00

Progress in Clinical and Biological Research, Volume 69B

**Twin Research 3: Part B. Intelligence, Personality, and Development**

ISBN 0-8451-0159-5

LC 81-12376

Publication: September 1981

308 pages, \$44.00

Progress in Clinical and Biological Research, Volume 69C

**Twin Research 3: Part C. Epidemiological and Clinical Studies**

ISBN 0-8451-0160-9

LC 81-12376

Publication: September 1981

302 pages, \$44.00